

ARB STAFF DISCUSSION OF THE RENEWABLE IDENTIFICATION NUMBER

Under the Renewable Fuel Standard (72 FR 23901, May 1, 2007), U.S. EPA finalized a system of volume accounting and tracking of renewable fuels. U.S. EPA requires that this system be based on the assignment of unique numbers to each batch of renewable fuel. These numbers are called Renewable Identification Numbers or RINs, and are assigned to each batch by the renewable fuel producer or importer. The use of RINs allows U.S. EPA to measure and track renewable fuel volumes starting at the point of their production rather than at the point when they are blended into conventional fuels, which provides more accurate measurements that can be easily verified. By tracking the amount of renewable fuel produced or imported and subtracting the amount exported, U.S. EPA could have an accurate accounting of the renewable fuel actually consumed as motor vehicle fuel in the U.S.

1. Generating RINs and Assigning Them to Batches

1.1 Form of Renewable Identification Numbers

Each RIN is generated by the producer or importer of the renewable fuel and uniquely identifies not only a specific batch, but also every gallon in that batch. The RIN consists of a 38-character code having the following form:

RIN: KYYYYCCCCFFFFFFBBBBBRRDSSSSSSSSEEEEEEEE

Where:

K = Code distinguishing assigned RINs from separated RINs.

YYYY = Calendar year of production or import.

CCCC = Company ID.

FFFFFF = Facility ID.

BBBBB = Batch number.

RR = Code identifying the Equivalence Value.

D = Code identifying cellulosic biomass ethanol.

SSSSSSSS = Start of RIN block.

EEEEEEEE = End of RIN block.

Compliance with the standard is determined on a calendar year basis, and the year of RIN generation is necessary in order to ensure that RINs are used for compliance purposes only in the calendar year generated or the following year.

U.S. EPA assigns the company and facility IDs as part of the registration process. Company IDs will be used primarily to determine compliance, while the inclusion of facility IDs allows the assignment of batch numbers unique to each facility.

The batch number is chosen by the producer and includes five digits to allow for facilities that produce up to one hundred thousand batches per year. U.S. EPA

determined that the requirement that the batch numbers be sequential is not necessary so long as each batch number is unique within a given calendar year.

The RR, D, and K codes together describe the nature of the renewable fuel and the RINs that are generated to represent it. The RR code simply represents the Equivalence Value for the renewable fuel, multiplied by 10 to eliminate the decimal place inherent in Equivalence Values. Equivalence Values form the basis for the total number of RINs that can be generated for a given volume of renewable fuel. The D code identifies cellulosic biomass ethanol batches allowing obligated parties to be able to distinguish RINs representing cellulosic biomass ethanol from RINs representing other types of renewable fuel. The K code is used to distinguish between RINs that must be transferred with a volume of renewable fuel (assigned RINs) and RINs that can be transferred without renewable fuel (separated RINs). U.S. EPA requires that RINs separated from volumes of renewable fuel be identified by changing the K code from a value of 1 to a value of 2.

The RIN also contains two codes SSSSSSSS and EEEEEEEE that together identify the “RIN block”. The RIN block demarcates the number of gallons of renewable fuel that the batch represents in the context of compliance. Depending on the Equivalence Value, this may not necessarily be the same as the actual number of gallons in the batch. U.S. EPA assigned eight digits to the RIN block codes to allow batches up to 100 million gallons in size. RIN can refer to either the number representing an entire batch or the number representing one gallon of renewable fuel in the context of compliance. In order to make the distinction clear, U.S. EPA defines the latter as a gallon-RIN, and a batch-RIN will represent multiple gallon-RINs. In the case of a gallon-RIN, the values of SSSSSSSS and EEEEEEEE will be identical. A batch-RIN, on the other hand, will generally have different values for SSSSSSSS and EEEEEEEE, representing the starting and ending values of a batch of renewable fuel.

1.2 Equivalence Values for Renewable Fuels

The Energy Policy Act of 2005 (the Act) stipulates that every gallon of waste-derived ethanol and cellulosic biomass ethanol should count as if it were 2.5 gallons for Renewable Fuel Standard (RFS) compliance purposes. The Act does not stipulate similar values for other renewable fuels. U.S. EPA requires that the “Equivalence Values” for renewable fuels other than those for which specific values are set forth in the Act be based on their energy content in comparison to the energy content of ethanol, adjusted as necessary for their renewable content. The result is an Equivalence Value for corn ethanol of 1.0, for biobutanol of 1.3, for biodiesel (mono alkyl ester) of 1.5, and for non-ester renewable diesel of 1.7. The methodology can be used to determine the appropriate equivalence value for any other potential renewable fuel as well.

U.S. EPA requires that Equivalence Values be assigned to every renewable fuel to provide an indication of the number of gallons that can be claimed for

compliance purposes for every physical gallon of renewable fuel. An Equivalence Value of 1.0 means that every physical gallon of renewable fuel counts as one gallon for RFS compliance purposes. An Equivalence Value greater than 1.0 means that every physical gallon of renewable fuel counts as more than one gallon for RFS compliance purposes, and vice versa. Table 1 provides the Equivalence Values for some renewable fuels.

Table 1. Equivalence Values for Some Renewable Fuels

	Equivalence Value (EV)
Cellulosic biomass ethanol or waste-derived ethanol	2.5
Ethanol from corn, starches, or sugar	1.0
Biodiesel (mono alkyl ester)	1.5
Non-ester renewable diesel and hydrotreated renewable crudes	1.7
Butanol	1.3
Renewable crude-based fuels	1.0

1.3 Generating RINs

In order to determine the number of gallon-RINs that must be generated and assigned to a batch by a producer or importer, the actual volume of the batch must be multiplied by the Equivalence Value to determine an applicable “RIN volume”:

$$V_{\text{RIN}} = \text{EV} \times V_s$$

Where:

V_{RIN} = RIN volume, in gallons, representing the number of gallon-RINs that must be generated (rounded to the nearest whole gallon).

EV = Equivalence value for the renewable fuel.

V_s = Standardized volume of the batch of renewable fuel at 60 °F, in gallons.

When RINs are first assigned to a batch of renewable fuel by its producer or importer, the RIN block start for that batch will in general be 1 (i.e., SSSSSSSS will have a value of 00000001). The RIN block end value EEEEEEEE will be equal to the RIN volume calculated above. The batch-RIN then represents all the gallon-RINs assigned to the batch. Below are some examples of the number of gallon-RINs that would be assigned to a batch under different circumstances.

Batch volume: 2000 gallons corn ethanol.

Equivalence value: 1.0.

Gallon-RINs: 2000.

Batch-RIN: 1–2007–1234–12345–00001–10–2–00000001–00002000.

Batch volume: 2000 gallons biodiesel.

Equivalence value: 1.5.

Gallon-RINs: 3000.

Batch-RIN: 1–2007–1234–12345–00002–15–2–00002001–00005000.

Batch volume: 2000 gallons cellulosic ethanol.

Equivalence value: 2.5.

Gallon-RINs: 5000.

Batch-RIN: 1–2007–1234–12345–00003–25– 1–00005001–00010000.

A RIN is assigned to renewable fuel when ownership of the renewable fuel is transferred to another party. If the renewable fuel was consumed within the confines of the production facility where it was made, no transfer of ownership would occur in this case; therefore no RIN should be generated. U.S. EPA also allows renewable fuel producers who produce less than 10,000 gallons in a year to avoid the requirement to generate RINs and assign them to batches.

2. Product Transfer Document

The product transfer document (PTD) is required when ownership of a renewable fuel is transferred from one party to another. The PTD can be included in any form of standard documentation that is already associated with or used to identify title to the volume. In many cases an invoice could serve this purpose.

The transferor of the renewable fuel must provide the transferee with a PTD which includes the following information:

- Name and address of transferor and transferee.
- Transferor's and transferee's U.S. EPA company registration numbers.
- Volume of renewable fuel being transferred.
- Date of transfer.

The PTD also must document the transfer of ownership of RINs assigned to the fuel. Assigned RINs may be transferred on the same PTD used to transfer ownership of the fuel or on a separate PTD.

- If the RINs are transferred on the same PTD, the RINs must be listed on the PTD.
- If the RINs are transferred on a separate PTD, the PTD transferring the fuel must state the number of gallon-RINs being transferred and a reference to the PTD which is transferring the RINs.
- A PTD which separately transfers the RINs must be transferred to the same party on the same day as the PTD used to transfer ownership of the renewable fuel.
- A PTD which separately transfers the RINs may be in the form of a spreadsheet or other type of list.
- If no assigned RINs are transferred with the renewable fuel, the PTD must state renewable fuel "No RINs transferred".

3. Calculating and Reporting Compliance

Under the Renewable Fuel Standard, RINs form the basis of the volume accounting and tracking system that allows each obligated party to demonstrate that they have met their renewable fuel obligation (RVO) each year. This section describes how the compliance process using RINs works.

For each calendar year, each obligated party is required to submit a report to the U.S. EPA documenting the RINs it acquired and showing that the sum of all gallon-RINs acquired is equal to or greater than its RVO. In the context of demonstrating compliance, all gallon-RINs have the same compliance value. The U.S. EPA can then verify that the RINs used for compliance purposes are valid by simply comparing RINs reported by producers to RINs claimed by obligated parties. U.S. EPA can also verify that any given gallon-RIN was not double-counted, i.e., used by more than one obligated party for compliance purposes. In order to be able to identify the cause of any double-counting, however, additional information is needed on RIN transactions (Product Transfer Documents).

If an obligated party has acquired more RINs than it needs to meet its RVO, then, in general, it can retain the excess RINs for use in complying with its RVO in the following year or transfer the excess RINs to another party. The conditions under which this is allowed are determined by the valid life of a RIN, which is 12 months as of the date of generation. RINs are valid for compliance purposes for the calendar year in which they are generated or the following year. A 20 percent cap on the amount of an obligated party's Renewable Volume Obligation (RVO) must be kept in the use of previous year RINs to meet current year compliance obligations. If, alternatively, an obligated party has not acquired sufficient RINs to meet its RVO for a given calendar year, it can carry a deficit into the next year, but only one year.

4. How Are RINs Distributed and Traded?

Under the Renewable Fuel Standard, the refiners and importers of gasoline are the parties obligated to comply with the renewable fuel requirements. At the same time, refiners and importers do not generally produce or blend renewable fuels at their facilities and so are dependent on the actions of others for the means of compliance. Renewable Identification Number (RIN) must be generated for all renewable fuel produced or imported into the U.S., and RINs must be acquired by obligated parties for use in demonstrating compliance with the RFS requirements. However, there are a variety of ways in which RINs could theoretically be transferred from the point of generation by renewable fuel producers to the obligated parties that need them.

The Renewable Fuel Standard relies on the current market structure for ethanol distribution and use and avoiding the need for creation of new mechanisms for RIN distribution that are separate and apart from this current structure. The program basically requires RINs to be transferred with renewable fuel until the point at which the renewable fuel is purchased by an obligated party or is blended into gasoline or diesel fuel by a blender.

4.1 Distribution of RINs with Volumes of Renewable Fuel

U.S. EPA requires that RINs be transferred with volumes of renewable fuel as they move through the distribution system, until ownership of those volumes is assumed by an obligated party, exporter, or a party that converts the renewable fuel into motor vehicle fuel. At such time, RINs can be separated from the volumes and freely traded. This approach places certain requirements on anyone who takes ownership of renewable fuels, including renewable fuel producers, importers, marketers, distributors, blenders, and terminal operators.

- **Responsibilities of Renewable Fuel Producers and Importers**

The initial generation of RINs and their assignment to batches of renewable fuel will be the sole responsibility of renewable fuel producers and renewable fuel importers. Volumes of renewable fuel can be measured most accurately and be more readily verified at these originating locations.

The final Renewable Fuel Standard defines a batch of renewable fuel as a volume that has been assigned a unique batch-RIN. There are two limits on the volumes of renewable fuel that are identified as a single batch. First, the RIN contains only enough digits to permit the assignment of 99,999,999 gallon-RINs to a single batch. For biodiesel with an Equivalence Value of 1.5, a single batch can contain up to 66,666,666 gallons of biodiesel. Second, in order to provide more clarity in the event that an investigation of a party's volume and RIN generation records is conducted, U.S. EPA also limits a batch to the maximum volume that is produced or imported by the renewable fuel producer or importer within a calendar month. Within these two limits, producers and importers can define batches of renewable fuel according to their own discretion and practices. These parties must designate a unique serial number for each batch (RIN code BBBB) and specify its Equivalence Value. The batch-RIN will identify all the gallon-RINs assigned to the batch.

Although a RIN is generated when renewable fuel is produced or imported, U.S. EPA does not define the point of production. However, the RIN must be assigned to a batch no later than the point in time when ownership of the batch is transferred from the producer or importer to another party. If ownership of the batch is retained by the producer or importer after the batch leaves the originating facility, the RIN need not be transferred along with the batch on product transfer documents identifying transfer of custody.

- Responsibilities of Parties That Buy, Sell, or Handle Renewable Fuels

Volumes of renewable fuel can be transferred between many different types of parties as they make their way from the production or import facilities where they originated to the places where they are blended into conventional gasoline or diesel. Some of these parties take custody but not ownership of these volumes, storing and transmitting them on behalf of those who retain ownership. Other parties take ownership but not custody, such as a refiner who purchases ethanol and has it delivered directly to a blending facility. Thus, prior to blending, each volume of renewable fuel can be owned or held by any number of parties including marketers, distributors, terminal operators, and refiners.

The final Renewable Fuel Standard allows any party to transfer a volume of renewable fuel without assigned RINs, or with a different number of assigned RINs than were received with the renewable fuel, as long as the number of assigned gallon-RINs held by that party at the end of a quarter is no higher than the number of gallons it owns at the end of the quarter. This will provide parties with the flexibility to decide which RINs are transferred with which volumes, and to transfer some volumes without RINs if the party took ownership of some volumes without assigned RINs. RFS requires only that the number of gallon-RINs held by a party at the end of a quarter be no higher than the number of gallons held by that party, adjusted by their Equivalence Value. Aside from spillage, evaporation, or volume metering imprecision, the only way that the number of gallon-RINs that are held by a party could be higher than the number of gallons held (adjusted for their Equivalence Value) is if that party transferred some volume without RINs. In such a case, the excess RINs held would be deemed to have been separated from renewable fuel, in violation of the prohibition against separating RINs.

This approach requires parties that hold assigned RINs to also report the volumes of renewable fuel held at the end of each quarter. Also, this approach requires distinction between RINs assigned to renewable fuel ($K=1$) and RINs that have already been separated from renewable fuel ($K=2$), since only assigned RINs would be subject to the end-of-quarter comparison of RINs held and volumes held.

Under the RFS fungible distribution system, the RINs received with a volume of renewable fuel may not be the RINs originally generated to represent that particular volume. Thus, the Equivalence Value for a volume of renewable fuel cannot be based on the RR code of associated RINs, but instead should be determined from the composition of the renewable fuel. If the Equivalence Value for a volume of renewable fuel cannot be determined from its composition, it should be assumed to be 1.0.

- Batch Splits and Batch Mergers

Under the final Renewable Fuel Standard, parties taking ownership of volumes of renewable fuel with assigned RINs will simply retain an inventory of all assigned

RINs owned. As volumes of renewable fuel are then transferred to other parties, an appropriate number of gallon-RINs are withdrawn from the party's inventory and transferred along with the renewable fuel. There is no need for the party to determine which RINs were originally assigned to the volume being transferred. For parties handling both ethanol and biodiesel, it would be reasonable to transfer RINs with volumes in a manner consistent with the Equivalence Value of the renewable fuel, but this would not be required under the final Renewable Fuel Standard in which the number of assigned gallon-RINs transferred with each gallon of renewable fuel can be anywhere between zero and 2.5. In addition, volumes of renewable fuel can be split or merged any number of times while remaining under the ownership of a single party, with no impact on RINs. It is only when ownership of a volume of renewable is transferred to another party that an appropriate number of gallon-RINs need to be withdrawn from the party's inventory and assigned to the transferred volume, subject to the flexibility associated with the quarterly average as discussed above.

4.2 Separation of RINs from Volumes of Renewable Fuel

Separation of a RIN from a volume of renewable fuel means that the RIN is no longer included on the product transfer document and can be traded independently from the volume to which it had originally been assigned. The final Renewable Fuel Standard requires a refiner or importer to separate the RIN from renewable fuel as soon as he assumes ownership of that renewable fuel. In the case of ethanol blended into gasoline at low concentrations (≤ 10 volume percent), stakeholders indicated that a large volume of the ethanol is purchased by refiners directly from ethanol producers, and is then passed to blenders who carry out the blending with gasoline. Therefore, in many cases RINs assigned to renewable fuel will pass directly from the producers who generated them to the obligated parties who need them. However, significant volumes of ethanol are also blended into gasoline without first being purchased by a refiner. In some cases, the blender itself purchases the ethanol. In other cases, a downstream customer purchases the ethanol and contracts with the blender to carry out the blending. Regardless, the ethanol may never be held or owned by an obligated party before it is blended into gasoline. Thus U.S. EPA also requires a blender to separate the RIN from the renewable fuel if he takes ownership of the renewable fuel and actually blends it into gasoline (or, in the case of biodiesel, into diesel fuel). This would only apply to volumes where the RIN had not already been separated by an obligated party. Since blenders will in general not be obligated parties under RFS, blenders who separate RINs from renewable fuel will have no need to hold onto those RINs and thus can transfer them to an obligated party for compliance purposes or to any other party.

There may be occasions in which a retailer downstream of a blender actually owns the volume of renewable fuel when it is blended into gasoline or diesel. In such cases the blender will have custody but not ownership of the renewable fuel. In the final Renewable Fuel Standard, U.S. EPA requires the RIN to be separated from the volume of renewable fuel when that volume is blended into

gasoline, but the RIN can only be separated by the party that owns that volume of renewable fuel at the time of blending. In the case of a blender and a downstream customer who might both lay claim to the right to separate any assigned RINs (for instance, if transfer of ownership occurred simultaneous with blending), these two parties would need to come to agreement between themselves regarding which party will own the separated RINs.

Many different types of renewable fuel can be used to meet the RFS volume obligations placed upon refineries and importers. Currently, ethanol is the most prominent renewable fuel and is most commonly used as a low level blend in gasoline at concentrations of 10 volume percent or less. However, some renewable fuels can be used in neat form (i.e. not blended with conventional gasoline or diesel). The two RIN separation situations described above would capture any renewable fuel for which ownership is assumed by an obligated party or a party that blends the renewable fuel into gasoline or diesel. However, renewable fuels which are used in their neat (unblended) form as motor vehicle fuel would not be captured. This would include such renewable fuels as neat biodiesel (B100) or renewable diesel, methanol for use in a dedicated methanol vehicle or biogas for use in a CNG vehicle. Under the final Renewable Fuel Standard, producers and importers must assign a RIN to all renewable fuels produced or imported, including neat renewable fuels. To avoid the possibility that the RIN assigned to neat renewable fuel would never become available to an obligated party for RFS compliance purposes, U.S. EPA proposed to more broadly define the right to separate a RIN from renewable fuel. In addition to obligated parties and blenders, any producer holding a volume of renewable fuel for which the RIN has not been separated could separate the RIN from that volume if the party designates it for use only as a motor vehicle fuel in its neat form and it is in fact only used as such. This approach would place neat fuel producers in the same category as blenders, in that they are producing motor vehicle fuel.

As discussed above, under the final RFS, obligated parties must separate RINs from volumes of renewable fuel. This applies to all volumes of renewable fuel that an obligated party owns. The requirement to separate a RIN from the renewable fuel is intended to apply to refiners, blenders and importers for whom the production or importation of gasoline is a significant part of their overall business operations. Parties that are predominately renewable fuel producers or importers, but which must be designated as obligated parties due to the production or importation of a small amount of gasoline, should not be able to separate RINs from all renewable fuels that they own. As a result, the final RFS prohibits obligated parties from separating RINs from volumes of renewable fuel that they produce or import that are in excess of their RVO. However, obligated parties must separate any RINs from volumes of renewable fuel that they own if that volume was produced or imported by another party.

4.3 Distribution of Separated RINs

U.S. EPA proposed that RINs become freely transferable once they are separated from a batch of renewable fuel. Each RIN could be held by any party and transferred between parties any number of times. U.S. EPA argued that the unique features of the RFS program warranted more open trading than in past fuel credit programs. In particular, RINs are generated by parties other than obligated parties, and many nonobligated parties will own RINs (for example, oxygenate blenders who have the right to separate RINs from volumes). The RFS program must work efficiently not only for a limited number of obligated parties, but a number of non-obligated parties as well. As a result, U.S. EPA finalized a RIN trading program that permits any party to hold RINs and for RINs to be traded any number of times.

As with other credit-trading programs, the business details of RIN transactions, such as the conditions of a sale or any other transfer, RIN price, role of mediators, etc. will be at the discretion of the parties involved. The U.S. EPA is concerned only with information such as who holds a given RIN at any given moment, when transfers of RINs occur, who the party to the transfers are, and ultimately which obligated party relies on a given RIN for compliance purposes.

REFERENCES

U.S. EPA, Regulation of Fuels and Fuel Additives: Renewable Fuel Standard Program; Final Rule, 40 CFR Part 80, May, 2007